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Are all breastfed infants at risk for Vitamin D deficiency?

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Controversy continues over the AAP recommendation (July, '03) that all breastfed infants be routinely supplemented with Vitamin D to prevent rickets. Some researchers maintain that Vitamin D deficiency is, in reality, sunlight deficiency, and that humans are meant to manufacture their own Vitamin D through sufficient exposure to ultraviolet (UVB) light. In fact, the term "Vitamin D" is a misnomer; the substance is actually a hormone misidentified in the early days of vitamin research. Yet, instances of clinical rickets are described in the pediatric literature among breastfed infants where certain risk factors are present. These factors include:

- ►Mother Vitamin D deficient during the pregnancy (no prenatal vitamins, limited intake of fortified dairy products, insufficient sun exposure)
- ►Consistent coverage of the skin with clothing or sunscreen when outdoors
- ►Residing in areas where there is little UVB light for parts of the year or do not go outdoors
- ►Living in regions with significant air pollution or inner cities where buildings block light
- ►Dark skin pigmentation in mother and/or infant

A light-skinned infant at Kansas's latitude can obtain sufficient sun exposure in thirty minutes a week, or less than five minutes a day, during the summer months. An infant can synthesize enough Vitamin D in the warm months to last through the winter when more clothing is worn and less time spent outdoors. A very dark skinned infant might require 3 to 6 times that much exposure to synthesize enough Vitamin D, however, correlation of skin coloration and length of exposure needed has been problematic. Supplementing mothers who had low levels during pregnancy with 1000-2000 IU

Inside this issue:

Exclusive Breastfeeding: The Gold Standard – Safe, Sound and Sustainable.

August 1 to 7 is World Breastfeeding Week

Mary K. Washburn, RD/LD, CBE

The theme for World Breastfeeding Week (WBW) 2004 chosen by the World Alliance for Breastfeeding Action (WABA) *is* ***Exclusive Breastfeeding: The Gold Standard – Safe, Sound and Sustainable***. This year's theme will focus on getting people worldwide to understand the importance of exclusive breastfeeding.

Exclusive breastfeeding for six months means that the infant receives only breastmilk, from his or her mother, or expressed breastmilk, and no other foods or drinks with the exception of drops or syrups consisting of vitamins, mineral supplements, or medicines during this time.

Breast milk provides protection from infections by sharing the mother's immunities with the baby, until the baby has a chance to build up an immune system. According to the U.S. Department of Health & Human Services' Office on Women's Health, breastmilk contains more than 200 infection-fighting agents that cannot be replicated. (continued on page 2)

Vitamin D Deficiency, continued

.Ruth Lawrence MD, states "the reason we are having problems with Vitamin D today is that certain children do not get enough sunshine".

per day during breastfeeding did normalize deficient infant serum levels, but mothers may be at increased risk of developing renal calculi at that level of intake (Daaboul, 1997; Gartner, 2001). Recently published suggestions include obtaining a wrist x-ray and serum 25-hydroxyvitamin D level for all breastfed infants to detect subclinical rickets, although how many of these cases might progress to clinical rickets is open to question and the cost of the screening is an issue not addressed by the authors (Spence & Serwint, '04) .Vitamin drops recommended by some practitioners cost approximately $10/ month and are not available in "Vitamin D only" formulation in the US. Globally, there is not agreement on the RDA for infants (figures range from 200-800 IU per day) and recommendations range from prescribed sun exposure, conditional supplementation if risk factors are present, to the US position of universal supplementation. Locally, mothers report being advised to give vitamin drops beginning at 2 months of age, beginning at 6 months, or "No supplementation advised, sun exposure encouraged" , though a significant number indicated the baby's doctor had not mentioned Vitamin D supplementation at all. One mother reported being advised to give one 5 oz. bottle of formula daily "for Vitamin D", but that amount of formula provides 60 IU. A daily intake of 17 oz of formula would be required to provide the US RDA of 200 IU, displacing intake of the superior nutrition of breastmilk.

Ruth Lawrence MD, professor of Pediatrics and Obstetrics and Gynecology at the University of Rochester Medical Center, states "the reason we are having problems with Vitamin D today is that certain children do not get enough sunshine. The issue should not be presented as a deficiency of human milk." She further states, "We don't know the short- and long-term consequences of vitamin D supplementation on the otherwise exclusively breastfed baby ", recommending further research regarding the impact on gut flora and pH, changes in growth in supplemented infants who were not deficient, and any effect on the duration of breastfeeding. Jack Newman MD, Toronto pediatrician, expresses concern that more dark-skinned mothers, whose rates of initiating breastfeeding are already 20% below white and Latina mothers, will choose not to breastfeed, believing breastmilk inadequate to meet their infants' needs. He states, "The majority of exclusively breastfed infants do not need Vitamin D supplements," and suggests an evaluation of risk factors on a case-by-case basis as a more moderate approach.

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Gartner LM, Greer FR and section on breastfeeding and committee on nutrition. prevention of rickets and vitamin D deficiency: new guidelines for vitamin D intake. Pediatrics. 2003; 111:908-910

Daaboul, J et al. Vitamin D deficiency in pregnant and breastfeeding women and their infants. J Perinatol 1997; 17 (1): 10-14.

Mojab C. Sunlight deficiency and breastfeeding. Breastfeeding abstracts 2002, 3-4.

Spence J and Serwint J. Secondary prevention of vitamin D-deficiency rickets. Pediatrics.2004: 113: 70-73.

World Breastfeeding Week 2002, continued

(continued from page 1)

Studies show that babies who aren't breastfed exclusively for the first six months are more likely to develop asthma, allergies, and obesity in childhood. They are also more likely to suffer more colds, flu, ear infections, and other respiratory illnesses, and make more visits to the doctor.

Breastfeeding also helps a mother bond with her baby. Physical contact is important to newborns and can help them feel more secure, warm and comforted.

For additional information look at the following web sites www.waba.org.my/ And www.4woman.gov

BREASTFEEDING REMAINS BEST CHOICE IN A POLLUTED WORLD

LEAVEN article Dec-Jan 2003-2004 LLLI 123-25, 40 summarized by Michelle Moore, La Leche League Leader

Scientific research shows consistently that even in a world exposed to so many chemicals, breastfeeding offers advantages which outweigh the risk of ingesting possible contaminants. Indeed, the benefits of breastfeeding which include high levels of antioxidants may prove to be essential to compensate for and outweigh the risks of toxic effects from the environment. Today the focus of scientific concerns is being directed toward removing potentially toxic chemicals from the environment while recognizing the value of human milk, the only source of optimal nutrition for infants.

A discussion of this topic is incomplete without pointing out the well-documented nutritional inadequacies and detrimental health consequences of artificial baby milk, which may be contaminated both as products of the same environment and through manufacturing. In addition, human milk, unlike manufactured formula, does not add to the ecological burden of the planet.

Information on Contaminants and Minimizing Exposure

Routine monitoring of chemicals in human urine, blood, hair and milk show that environmental contaminants are present, not just in these testing specimens, but in the fat cells of everyone living in the area tested. Their presence is a reflection of the substances that exist in a particular community. This is a reason to eliminate toxins from the environment-- not a reason to eliminate breastfeeding. Virtually every infant born today already has a body burden of industrial chemicals. Indeed, evidence demonstrates that babies are more vulnerable to transmission of substances during the prenatal stage than after birth.

The World Health Organization, the American Academy of Pediatrics, and other major health associations, overwhelmingly support the importance of breastfeeding even in a contaminated world. Documented benefits of breastfeeding include reduced incidences of the following: insulin dependent diabetes, some childhood cancers, ear infections, upper respiratory infections, obesity and other health problems. In addition, studies suggest that breastfeeding may have a positive influence upon the development of verbal and general intelligence of the infant and improved maternal health.

References

Lawrence, R. *A Review of Medical Benefits and Contraindications to Breastfeeding in the US.* Technical Information Bulletin, National Center for Education in Maternal and Child Health, Oct. 1997.

Lunder, S. and Sharp, R. et al. *Study Finds Record High Levels of Toxic Fire Retardants in Breast Milk from American Mothers.* Environmental Working Group, 2003

Ribas-Fito, N. et al. Breastfeeding, exposure to organochlorine compounds, and neurodevelopment in infants. *Pediatrics* 2003; 111(5):580-585.

Steingraber, S. *Having Faith: An Ecologist's Journey to Motherhood.* New York: Berkley Books, 2001.

Additional Resources

Breastfeeding, Breast Milk, and Environmental Contaminants. International Lactation Consultant Association (ILCA), 2003.

www.ilca.org/pubs/index/php

Healthy Milk, Healthy Baby: Chemical Pollution and Mother's Milk. Natural Resources Defense Council (NRDC), 2001
www.nrdc.org/brestmilk/chem9.asp

Towards Healthy Environments for Children: Frequently asked questions about breastfeeding in a contaminated environment. World Alliance for Breastfeeding Action.
www.waba.org.my/FAQ%20Oct2003-10.pdf

Working Together for a Toxic-Free Future. World Alliance for Breastfeeding Action.
www.waba.org.my/FAQ%20Oct2003-10pdf

Breastfeeding offers advantages which outweigh the risk of ingesting possible contaminants.

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